TCT-39

Comprehensive intravascular Ultrasound Assessment of Stent Area and Its Impact on Restenosis and Adverse Cardiac Events in 403 Patients with Unprotected Left Main Disease

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Background: We assessed the optimal intravascular ultrasound (IVUS) stent area to prevent angiographic in-stent restenosis (ISR) after sirolimus-eluting stent implantation for unprotected left main coronary artery (LM) disease.
Methods: A total of 403 patients treated with single- or two-stent strategies (crushing and T-stent) had immediate post-stenting IVUS and 9-month follow-up angiography. Post-stenting minimal stent area (MSA) was measured in each of 4 segments: ostial left anterior descending (LAD), ostial left circumflex (LCX) polygon of confluence (POC, confluence zone of LAD and LCX), and proximal LM above the POC.
Results: Overall, 46 (11.4%) showed angiographic restenosis at 9 months: 3/67 (4.5%) non-bifurcation lesions treated with a single-stent, 14/222 (6.3%) bifurcation lesions treated with single-stent cross-over, and 29/114 (25.4%) of bifurcation lesions treated with two stents. The MSA cut-offs that best predicted ISR on a segmental basis were 5.0mm2 (ostial LCX ISR), 6.3mm2 (ostial LAD ISR), 7.2mm2 (ISR within the POC), and 8.2mm2 (ISR within the LM above the POC). Using these criteria, 133 (33.8%) had underexpansion of at least one segment. Angiographic ISR (at any location) was more frequent in lesions with underexpansion of at least one segment vs. lesions with no underexpansion (24.1% vs. 5.4%, p<0.001). Two-year MACE-free survival rate was significantly lower in patients with underexpansion of at least one segment vs. lesions with no underexpansion (89±3% vs. 98±1%, log-rank p<0.001); and post-stenting underexpansion was an independent predictor for major adverse cardiac events (adjusted HR=5.56, 95% CI=1.99–15.49, p=0.001).
Conclusion: With these criteria, IVUS optimization during LMCA stenting procedures may improve clinical outcomes.

TCT-40

Strut thickness and type of metal alloy of bare metal stents and frequency of in-stent-restenosis: Data from the Swedish Angiography and Angioplasty Registry (SCAAR)

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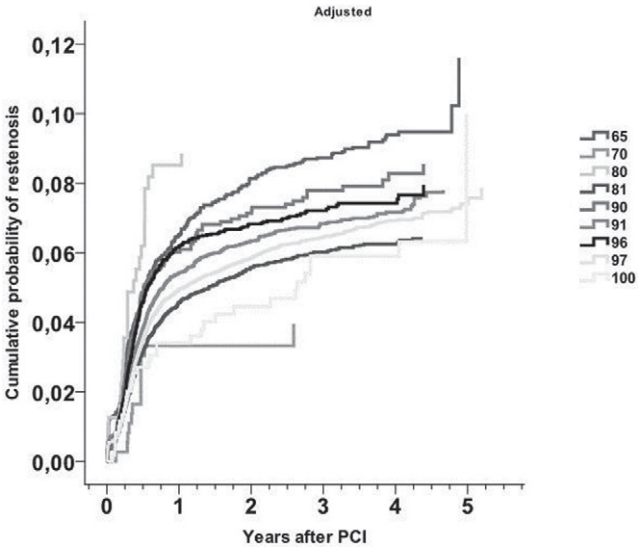
Background: In-stent-restenosis is influenced by patient-, lesion- and procedural characteristics. Strut thickness is thought to be a determinant of in-stent-restenosis where landmark studies showed that thinner struts were associated with lower restenosis rates. These studies used stents with extreme strut thickness (50 µm and 140 µm). We used the SCAAR database to investigate the question whether strut thickness and type of metal alloy influences restenosis rates in currently used BMS.
Methods: 75 448 BMS with strut thickness between 65 µm and 100 µm were included between May 1, 2005 and April 6, 2010. The follow-up ended Oktober 6, 2010 with a minimum follow-up of 6 months and a maximum follow-up of 5 years and 5 months (mean follow-up 1080 days ± 523). The data were analyzed with regard to stent strut thickness and metal alloy composition (second generation L605 cobalt-chromium versus first generation 316L). The analysis was adjusted for differences in clinical and procedural baseline characteristics.
Results: The figure shows the adjusted frequency of restenosis depending on strut thickness. The relative risk was 0.995 for thicker struts (95% confidence interval 0.990-0.999), p=0.017. Type of metal alloy (605 versus 316) did not influence restenosis rates with a relative risk of 1.009 (95% confidence interval 0.926-1.100), p=0.833.



Frequency of in-stent restenosis and strut thickness (µm)

Conclusion: The old dogma that thinner stent struts are associated with lower restenosis rates may no longer be true with modern BMS. Type of metal alloy did not influence restenosis rate in this large real world registry.

Left Main and Bifurcation Stenting

Room 121

Tuesday, November 8, 2011, 10:15 am - 12:25 pm

(Abstract nos 41 - 50)

TCT-41

Impact of final kissing balloon on outcome after unprotected left main stenting

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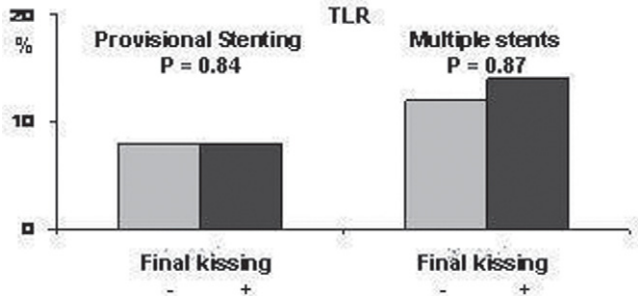
Background: The stenting technique for unprotected left main disease (uLMCA) using drug-eluting stents (DES) is under debate.
Methods: This analysis is based on a randomized study. 607 patients with symptomatic uLMCA disease were treated with DES (302 with Taxus and 305 with Cypher). We evaluated the benefit of final kissing balloon dilatation depending on the bifurcation type, number of stents and stenting technique on the angiographic restenosis rate (ISR), the need of target lesion revascularisation (TLR), as well as the change of the sidebranch diameter stenosis (Δ%DS) at 6 months.
Results: 520 (86%) patients had distal bifurcation involvement and 235 (39%) had a true bifurcation lesion (TBL, Medina 1,1,1). The ISR rate was 18% and the TLR rate 10% with low 30-day mortality (1%). Kissing was performed more often with multiple-stenting (72% vs. 15%, p<0.001) and for culotte vs. T-stenting (86% vs. 41%, p<0.001), leading to improvement of a suboptimal acute result (p<0.001). With provisional single-stenting, final kissing did not influence the ISR (12% vs. 10%, P=0.85) or TLR rates (8% vs. 8%, P=0.84), with low Δ%DS (4%), not influenced by kissing (5% vs. 4%, P=0.53). Interestingly, after achieving an optimal angiographic result with multiple stenting, final kissing had no additional benefit on the ISR (30% vs. 33%, P=0.84) or TLR rates (14% vs. 12%, P=0.87), with low Δ%DS (16%), not influenced by kissing (17% vs. 14%, P=0.32).



Conclusion: Provisional stenting is the preferred stenting technique (if SB <50%

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